CONTENTS OF VOLUME XI.

NUMBER XXXI.

Page.

ART. I. Comparison of Experiments on American and Foreign Building Stones to determine their relative strength and durability; by Prof. WALTER R. JOHNSON, - - - - 1

II. On the Law of the Induction of an Electric Current upon itself when developed in a straight prismatic conductor, and of discharges of Machine Electricity through straight wires; by J. H. LANE, - - - - - - - - - - 17

III. On Meteorites; by CHARLES UPHAM SHEPARD, - - - 36

IV. An Essay on the Classification of Nemertes and Planariæ: Preceded by some general considerations on the primary Divisions of the Animal Kingdom; by CHARLES GIRARD, - 41

V. Memoir on Emery; by J. LAWRENCE SMITH, M.D.—Second part.—On the Minerals associated with Emery, - - 53

VI. On the Velocity of the Galvanic Current in Telegraph Wires; by B. A. GOULD, Jr., in a Report to Prof. A. D. BACHE, LL.D., Superintendent of the U. S. Coast Survey, 67

VII. Reply to Mr. De la Rue's remarks on the Navicula Spencerii contained in the American Journal of Science, Vol. IX, p. 23; with a notice of two new test-objects; by J. W. BAILEY, - - - - - - - - - - 82

VIII. Miscellaneous Notices; by J. W. BAILEY, - - - 85

IX. On the time required to raise the Galvanic Current to its maximum in Coiled Conductors, and its importance in Electro-Mechanics; by Prof. CHAS. G. PAGE, M.D., - - 86

X. A new figure in Mica and other Phenomena of Polarized Light; by Prof. CHAS. G. PAGE, M.D., - - - - - 89

XI. Descriptions of new species of Fungi collected by the U. S. Exploring Expedition under C. Wilkes, U. S. N., Commander; by Rev. M. J. BERKELEY and Rev. M. A. CURTIS, - 93

XII. On the markings of the Carapax of Crabs; by JAMES D. DANA, 95

XIII. Chemical examination of a Phosphate of Iron, Manganese, and Lithia, from Norwich, Mass.; by W. J. CRAW, - - 99

XIV. On the Physical and Crystallographic characters of the Phosphate of Iron, Manganese and Lithia, of Norwich, Massachusetts; by JAMES D. DANA, - - - - - - 100

XV. Notice of the discovery by Walter Mantell, Esq., of Wellington, in the Middle Island of New Zealand, of a living specimen of Notornis, a bird of the Rail Family. (In a letter from Dr. MANTELL to the Senior Editor,) - - - 102

SCIENTIFIC INTELLIGENCE.

Chemistry and Physics.—On the penetration of Magnetism into soft iron, by Dr. VON FEILITZCH in Greifswald, 105.—On the law for the intensity of Magnetism induced in soft iron by galvanic currents, 106.—On the action of heat and alkaline bases upon the homologues of Acetic Acid, 107.—On the products of the action of Chlorine upon Propylene: On the combinations of Iodine and Phosphorus, 108.—Preparation of Chlorate of Potash: Iodine: Absorption of carbonic oxyd by an ammoniacal solution of sub-chlorid of copper: On the coloring principles of Madder, 109.—Action of Sulphite of Ammonia, 111.—On Nitro-hippuric acid: Action of cyanhydric acid upon aldehyde ammonia, 112.—On the Nitroprussids, a new class of Salts, by Dr. LYON PLAYFAIR, 113.—On a new property of Carbonic Oxyd, by F. LEBLANC: On the Aërometric Balance, by Prof POTTER, 114.—Preservation of the Proto-Sulphate of Iron from Oxydation, by M. RUSPINI: Freezing point of Water lowered by Pressure, by Prof. W. THOMSON: Test for the Presence of Chloroform in the Human body, by Dr. SNOW, 115.—On the behavior of Cuminic acid in the Animal System, by Dr. HOFMANN: Action of Essential Oil of Bitter Almond on the Animal System, by C. G. MITSCHERLICH, 116.

Mineralogy and Geology.—Report of Progress, of the Geological Survey of Canada, by D. E. LOGAN, Esq., 116.—On the Gold Mines of Darien, Emigration to New Grenada, and Canalization of the Isthmus of Darien; by Dr. CULLEN, 118.—On the Glacial Phenomena of the Neighborhood of Edinburgh, with some Remarks on the General Subject, by Mr. R. CHAMBERS, 119.—On Labradorite from the Island of Maui, Hawaiian Group, by J. D. DANA: Gibbsite, 121.

Zoology.—On the order of Succession of Parts in Foraminifera, by L. F. DE POURTALES, 121.—On the Principles of Classification, by L. AGASSIZ, 122.—Observations on the Blind Fish of the Mammoth Cave, by L. AGASSIZ, 127.—On the Carcinological Collections of the United States, by Prof. LEWIS R. GIBBES, 128.—Observations on the Fishes of Nova Scotia and Labrador, by H. R. STORER, 129.

Astronomy.—The new Planet Parthenope: The new Planet Clio: Another new Planet, 129.—Petersen's Comet: Bond's Comet: Shooting Stars of August 10, 1851, 130.—Meteoric Observations in November and December, 1850: Meteor seen in full Daylight: Meteor of September 30, 1850, 131.—Periodical Meteors of August, 1848 and 1849, by C. B. FORSHEY, 133.

Miscellaneous Intelligence.—Translation of part of a letter from Mr. E. F. de Furuhjelm, one of the officers of a Scientific Expedition sent out by the Emperor of Russia to the Northern part of Finnland and Lapland, to Oscar M. Lieber, 136.—Notice of a remarkable Spring or fountain in Hollis, now Phipsburg, Maine, about seven miles from Saco and from Kennebunk, by Rev. J. COGSWELL, 137.—Barometric Observations made during a journey from Albany, N. Y., to the summit of Mount Washington in New Hampshire, by JOEL W. ANDREWS, 138.—Makerstoun Observations on the Aurora Borealis, by J. BROWNE, Esq., 139.—Relative level of the Red Sea and Mediterranean, 142.—Fall of Dust at Olsterholz, near Detmold: Tenacity of Metals, 143.—*Obituary.*—Dr. William Gambel, 143.

Bibliography.—A Discourse on the Studies of the University of Cambridge, by ADAM SEDGWICK, M.A., F.R.S., 144.—Elements of Natural Philosophy, by W. H. C. BARTLETT, LL.D.: The Recent Progress of Astronomy, especially in the United States, by Prof. ELIAS LOOMIS, 146.—New Elements of Geometry, by SEBA SMITH: Practical Hand-book of Medical Chemistry, by JOHN E. BOWMAN: Geological Report on the Lake Superior Copper Region, Michigan, by CHARLES T. JACKSON, M.D., 147.—The Daguerrian Journal, devoted to the Daguerrian and Photographic Arts, also embracing the Sciences, Arts and Literature: A Practical Treatise on the Construction, Heating and Ventillation of Hot-houses, including Conservatories, Green-houses, Graperies, and other kinds of Horticultural structures, with Practical directions for their management in regard to light, heat and air, by ROBERT B. LEUCHARS: Art's Echo of Science, Inventions and Patents, 148.—Journal of the Academy of Natural Sciences of Philadelphia: Annals of the Lyceum of Natural History of New York, 149.

NUMBER XXXII.

Page.

ART. XVI. On the Velocity of the Galvanic Current in Telegraph Wires; by B. A. GOULD, Jr., in a Report to Prof. A. D. BACHE, LL.D., Superintendent of the U. S. Coast Survey, 153

XVII. Observations on the Gnathodon beds around the head of Mobile Bay; by Rev. C. S. HALE, - - - - - - 164

XVIII. On the Mineral Springs of Canada; by T. S. HUNT, - 174

XIX. Whirlwinds produced by the Burning of a Cane-Brake; by ALEXANDER FISHER OLMSTED, A.M.—With a Plate, - - 181

XX. Description of a new Graptolite found in the lower Silurian Rocks near the Falls of St. Croix River; by H. A. PROUT, M.D., - - - - - - - - - - 187

XXI. On the direction of the Spark from Secondary Currents under the influence of Helices or Magnets; by Professor CHAS. G. PAGE, M.D., - - - - - - - - - 191

XXII. On the Conduction and Distribution of the Galvanic Current in Liquids; by Prof. CHAS. G. PAGE, M.D. - - 192

XXIII. Two Problems by Bāpu Deva Shāstri, Native Professor of Mathematics in the Benares College, - - - - - 194

XXIV. On the Vents of Hot Vapor in Tuscany, and their relations to Ancient Lines of Fracture and Eruption; by Sir RODERICK IMPEY MURCHISON, - - - - - - - 199

XXV. On Kirkwood's Law of the rotation of the Primary Planets; by Prof. ELIAS LOOMIS, - - - - - - - - 217

XXVI. On a new Genus of Crustacea in the Collections of the U. S. Exploring Expedition under Capt. C. Wilkes, U. S. N.; by JAMES D. DANA, - - - - - - - - - 223

XXVII. Mineralogical Notices, - - - - - - - - 225

XXVIII. Notices of Coal in China; by D. J. MACGOWAN, M.D., 235

XXIX. Abstract of a Meteorological Journal kept at Marietta, Ohio, for the year 1850; by S. P. HILDRETH, M.D., - - 239

XXX. On the different Chemical Conditions of the Water at the surface of the Ocean and at the bottom, on Soundings; by AUG. A. HAYES, - - - - - - - - - - 241

XXXI. On the Limit of Perpetual Snow in the Himalaya; by Lieut. STRACHEY, - - - - - - - - - - 244

XXXII. Analyses of the Ashes of certain Commercial Teas; communicated by Prof. E. N. HORSFORD, - - - - 249

SCIENTIFIC INTELLIGENCE.

Chemistry and Physics.—Latent heat of Ice, 251—Liquefaction of Gases: Evolution of Light at the Negative Pole of the Galvanic Series, 252.—Compounds of Phosphorus and Iodine: On the employment of Hydrogen in Mineral Analyses, 253—Capronic and Œnanthic Acids: Amylo-sulphuric Acid, 254.—New allotropic modification of Phosphorus, 255.—Theory of Organic Radicals: On a compound of Chlorine, Phosphorus and Nitrogen, 256—Quantitative separation of Potash and Soda: Constitution of Tourmaline, 257.—Manganese in the urine, by Prof. HORSFORD, 259.

Mineralogy and Geology.—Liebigite, by J. Lawrence Smith: On the Geology of Spain, by Don Joaquin Ezquerra del Bayo, 259.—Ascent of Popocatepetl, 266.—On the Hydrargillite with the Corundum of Pennsylvania, by T. F. Seal: On Rhode Island Coal, by A. A. Hayes, 267.

Zoology.—Conspectus Crustaceorum quæ in Orbis Terrarum circumnavigatione, Carolo Wilkes e Classe Reipublicæ Fœderatæ Duce, lexit et descripsit J. D. Dana. Pars VI, 268.—Zoological Researches, by Joseph Leidy, M.D., 274.—Value of the word Species in Zoology, by S. G. Morton, M.D., 275.

Astronomy.—The new planet Egeria, 276.

Miscellaneous Intelligence.—Magnetism, 276.—A comparative examination of the objective glasses of Microscopes from Mr. Ross of England, Mr. Spencer of America, and M. Nachez of Paris, by J. Lawrence Smith, 277.—Logeman's Magnets, 278.—Albuminizing Photogenic Glasses, 279.—New Method of Engraving Plates for Printing Ferns, Sea Weeds, &c.: On Sugar in the flowers of Rhododendron ponticum, 280.—On British Eocene Serpents and the Serpent of the Bible, by Prof. Owen, 281.—Indiana Cave, 283.—On the Blue Lick Spring, Licking River, Ky., by Prof. Robert Peter, M.D., 284.—Wingless Bird: Vegetable Physiology, 286.—Anæsthetic Action: On Telegraphs and on Gutta Percha as a means of insulation and a material for models, by Prof. C. G. Page, 287.—On the Purification of Coal Gas, by Mr. Laming, 291.—On the Asphaltic Coal of New Brunswick, by C. T. Jackson, 292.—Shooting Stars of August, 1850: Lalande Medal: Academy of Natural Sciences of Philadelphia, 293.—*Obituary.*—John James Audubon: Prof. H. C. Schumacher, 295.

Bibliography.—Patent Office Report for 1849, 295.—Pictorial Atlas of Fossil Remains, by G. A. Mantell, Esq., LL.D., F.R.S., &c., 298.—On the Pelorosaurus, Belemnite and Belemnoteuthis, and Hylæosaurus, by G. A. Mantell, Esq., F.R.S., &c.: A Treatise on Trigonometry, Plane and Spherical, by Rev. Charles W. Hackley, S.T.D., 299.—Review of Chemistry for Students, by J. G. Murphy, M.D.: The advantages of a Geological Survey of the State of Missouri, by H. A. Prout, M.D., 300.—Reports on the Geology and Topography of California: Note Geologique sur les Terrains de Sabero, par D. Casiano de Prado, 301.—The Doctrine of the Unity of the Human Race examined on the Principles of Science, by John Bachman, D.D.: Contributions to Conchology, by Prof. C. B. Adams: The Western Agriculturalist, edited by Prof. W. W. Mather: Boston Journal of Natural History, 302.

List of Works, 303.

NUMBER XXXIII.

Page.

Art. XXXIII. On the Aboriginal Monuments and Relics of New York; by E. G. Squier, A.M., - - - - - - - 305

XXXIV. On the corrosion of an Alloy, composed of Copper and Silver, in Sea-water; by Aug. A. Hayes, - - - - 324

XXXV. On the Calculus of Operations; by John Paterson, A.M., 327

XXXVI. On the Mammoth Cave of Kentucky; by Professor B. Silliman, Jr., - - - - - - - - - - 332

XXXVII. Descriptions of new species of Fishes; by William Prescott, M.D., - - - - - - - - - - 340

XXXVIII. Meteorological Observations: Abstract of a Meteorological Journal, kept at Beloit College; by S. Pearl Lathrop, M.D., - - - - - - - - - - - 345

Page.
XXXIX. Miscellaneous Notices; by J. W. Bailey, - - 349
XL. On the Chemical Constitution of the Mineral Warwickite; by T. S. Hunt, - - - - - - - - - - 352
XLI. On Coral Reefs and Islands; by James D. Dana, - - 357
XLII. On the Infusoria and other Microscopic forms in Dust-showers and Blood-rain; by Dr. C. G. Ehrenberg, - - 372
XLIII. Notice of the Geology of the Florida Keys, and of the Southern Coast of Florida; by Prof. M. Tuomey, - - 390
XLIV. On the Law of the Rotation of the Primary Planets; by Daniel Kirkwood, - - - - - - - - - 394
XLV. New Genera of Fossil Corals from the Report by James Hall, on the Palæontology of New York, - - - - 398
XLVI. Analyses of Pitchstone Porphyry from Isle Royale, and of a Crystal of Phosphate of Lime from Hurdstown, New Jersey; by C. T. Jackson, M.D., - - - - - - 401
XLVII. On the Volatility of Phosphoric Acid in Acid Solutions when heated; and on Schmidt's Process for the Determination of Nitrogen; by J. B. Bunce, - - - - - - 403
XLVIII. On Bromine as a Toxicological agent; by Henry Wurtz, - - - - - - - - - - - 405
XLIX. On an Improved Remontoire Escapement for an Astronomical Clock; by J. Fulton, - - - - - - 406

SCIENTIFIC INTELLIGENCE.

Chemistry and Physics.—Experimental Researches in Electricity, by Michael Faraday, Esq., D.C.L., F.R.S., &c., 410.—Daguerrotypes by Galvanic Light, by B. Silliman, Jr., 417.—Attraction of Electro-magnets, 418.—On the Amid compounds of Cyanogen, 419.—On Cinchonine: Aldehyde of Caprinic Acid, 420.—Theory of the formation of Ether, 421.—On the theory of anisol and its homologues, 422.

Mineralogy and Geology.—Notices of Minerals and new localities, by Prof. O. P. Hubbard, 423.—Boulders carried by Ice, 425.

Zoology.—On the Classification of the Maioid Crustacea or Oxyrhyncha; by James D. Dana, 425.—The Apteryx of New Zealand, 434.—Ibis guarauna in New England, by Dr. Cabot, 435.

Miscellaneous Intelligence.—Abstract of Meteorological Observations made at Burlington, Vt., in 1850, by Z. Thompson, 436.—Magnetic Observatory at Toronto: African Geography, 437.—The sources of the Nile, 438.—Survey of the Louisiade Archipelago and the Southern Coast of New Guinea, by the late Capt. O. Stanley, R.N., with Notes, &c., by Mr. MacGillivray, 439.—On Peat and its Products, by Prof. Brande, 440.—On Printing Ferns, Sea-weeds, &c., 441.—Note on Thapsus verbascum, by H. A. Riley: Geological Survey of Pennsylvania: Observatory of Altona: Cabinet of minerals for sale: American Association for the Advancement of Science, 442.—Munificent donation to Dartmouth College, 443.—*Obituary.*—C. W. B. Goldschmidt, 443.—William Sturgeon, 444.—Dr. Linck, 446.

Bibliography.—Report of the Secretary of the Treasury on the Coast Survey; Report of Prof. Alexander D. Bache, Superintendent of the Coast Survey, 446.—The Annual of Scientific Discovery, A Year-Book in Science and Art: Principles of Zoology, 447.—Smithsonian Institution Publications: An Elementary

Treatise on Statics, by GASPARD MONGE, 448.—Rainey's Improved Abacus: Lichenes Americæ Septentrionalis Exsiccati, curante EDVARDO TUCKERMAN, A.M.: The Old Red Sandstone or New Walks in an Old Field, by HUGH MILLER, 449.

List of Works, 449.

Index, 451.

Plate I, Magnetic Telegraph—to illustrate Articles VI. and XVI.

Plate II, to illustrate Art. XIX, On Whirlwinds, p. 181.

ERRATA.

P. 18, l. 16 from bottom, for "space," read "sphere," P. 22, l. 5 from top, substitute f for f. P. 23, l. 13 from bottom, for "any portion of *cgrs*," read "any portion *cgrs*." P. 24, l. 15 from top, for $\frac{d^2P}{ds}d\varphi$ read $\frac{d^2P}{ds\,d\varphi}d\varphi$. Page 33, line 8 from bottom, for πKR^2 read $2\pi KR^2$. P. 34, l. 4 from top, for $\frac{d^2Q'}{dt}$ read $\frac{d^2Q'}{dt^2}$.

P. 97, 9th l. from bottom, for *Lagostoma nodosa*, read *Lagostoma perlatus*.

P. 108, l. 12 from bottom, for "anilene," read "amilene." P. 110, line 22 from bottom, for "$C_{14}H_5O_4+4HO$," read "$C_{20}H_6O_6+4HO$." P. 112, l. 19 from bottom, for "urthethan," read "urethan."